

WHAT IS CLAIMED IS:

1. A method of fabricating an implantable medical device having at least one porous layer for releasably containing at least one therapeutic agent, the method comprising:

providing an implantable medical device comprising at least one alloy; and removing at least one component of the alloy to form the at least one porous layer.

2. A method as in claim 1, wherein the removing step is performed so as to form the porous layer as a biocompatible material.

3. A method as in claim 2, wherein the biocompatible material comprises gold.

4. A method as in claim 1, wherein providing the implantable medical device comprises providing a tubular stent device having an outer surface and an inner surface.

5. A method as in claim 4, wherein the stent device comprises a coronary artery stent for use in a percutaneous transluminal coronary angioplasty procedure.

6. A method as in claim 4, wherein the at least one alloy is disposed along the outer surface of the stent device.

7. A method as in claim 1, wherein providing the implantable medical device includes depositing the at least one alloy on at least one surface of the medical device.

8. A method as in claim 1, wherein the alloy is disposed along an outer surface of the implantable medical device, such that the removing step forms the porous layer on the outer surface of the device.

9. A method as in claim 1, wherein the alloy comprises at least one metal selected from the group consisting of gold, silver, nitinol, steel, chromium, iron, nickel, copper, aluminum, titanium, tantalum, cobalt, tungsten, palladium, vanadium, platinum and niobium.

10. A method as in claim 1, wherein the alloy comprises at least one metal and at least one non-metal.

11. A method as in claim 1, further comprising embedding at least one substance within the alloy before the removing step.

12. A method as in claim 11, wherein the at least one substance is selected from the group consisting of a salt and silver dioxide particles.

13. A method as in claim 1, wherein removing the at least one component comprises exposing a stainless steel alloy to sodium hydroxide.

14. A method as in claim 1, wherein removing the at least one component comprises dissolving a most electrochemically active component of the alloy.

15. A method as in claim 1, further comprising coating the device after the removing step with at least one of titanium, gold and platinum.

16. A method as in claim 1, further comprising introducing the at least one therapeutic agent into the porous layer.

17. A method as in claim 16, wherein introducing the at least one therapeutic agent comprises introducing by at least one of liquid immersion, vacuum dessication, high pressure infusion and vapor loading.

18. A method as in claim 16, wherein the at least one therapeutic agent comprises at least one anti-restenosis agent or anti-inflammatory agent for inhibiting restenosis of a coronary artery.

19. A method as in claim 1, wherein the device is provided with multiple layers of alloy and multiple components are removed to provide a device having multiple porous layers.

20. A method as in claim 19, wherein the multiple porous layers have different porosities and different atomic compositions.

21. A method as in claim 1, further comprising forming a porous layer on an inner lumen of the device.

22. A method as in claim 21, further comprising disposing live cells within the porous layer of the internal lumen, the porous layer having a porosity to allow transport of at least some molecules to the live cells while preventing access of at least some immune system agents to the cells.

23. A method for treating a blood vessel using an implantable medical device having at least one porous layer for releasably containing at least one therapeutic agent, the method comprising:

providing at least one implantable stent having at least one porous layer for releasably containing at least one therapeutic agent; and

placing the stent within the blood vessel at a desired location, wherein the stent releases the at least one therapeutic agent from the at least one porous layer after placement.

24. A method as in claim 23, wherein the desired location comprises an area of stenosis in the blood vessel, and wherein the at least one therapeutic agent comprises at least one anti-restenosis agent or anti-inflammatory agent for inhibiting re-stenosis of a coronary artery.

25. A method as in claim 23, wherein the device is provided with multiple layers of alloy and multiple components are removed to provide a device having multiple porous layers.

26. A method as in claim 25, wherein the multiple porous layers have different porosities and different atomic compositions.

27. A method as in claim 23, wherein the blood vessel comprises a coronary artery.

28. A method as in claim 23, wherein the placing step comprises placing the stent so as to contact the porous layer with at least one of a stenotic plaque in the blood vessel and an inner wall of the blood vessel.

29. An implantable medical device having at least one porous layer, each of the at least one porous layers comprising:

at least one remaining alloy component; and
interstitial spaces, wherein the interstitial spaces comprise at least one removed alloy component space of an alloy, the alloy comprising the at least one remaining alloy component and the at least one removed alloy component.

30. An implantable medical device as in claim 29, wherein each of the at least one porous layers comprises a matrix.

31. An implantable medical device as in claim 29, wherein each of the at least one porous layers comprises at least one biocompatible material.

32. An implantable medical device as in claim 31, wherein the biocompatible material comprises gold.

33. An implantable medical device as in claim 29, wherein the implantable medical device comprises an implantable stent device having an outer surface and an inner surface, and wherein the at least one porous layer is disposed along the outer surface.

34. An implantable medical device as in claim 33, wherein the stent device comprises a coronary artery stent for use in a percutaneous transluminal coronary angioplasty procedure.

35. An implantable medical device as in claim 29, wherein the alloy comprises at least one metal selected from the group consisting of gold, silver, nitinol, steel, chrome, iron, nickel, copper, aluminum, titanium, tantalum, cobalt, tungsten, palladium, vanadium, platinum and niobium.

36. An implantable medical device as in claim 35, wherein the alloy comprises stainless steel, the at least one remaining alloy component comprises iron and nickel, and the at least one removed alloy component comprises chromium.

37. An implantable medical device as in claim 29, wherein the at least one removed component comprises a most electrochemically active component of the alloy.

38. An implantable medical device as in claim 29, further comprising at least one therapeutic agent disposed within the at least one porous layer.

39. An implantable medical device as in claim 38, wherein the at least one therapeutic agent comprises at least one agent for inhibiting re-stenosis of a coronary artery.

40. An implantable medical device as in claim 29, further comprising a coating over an outer surface of the device, the coating comprising at least one of titanium, gold and platinum.

41. An implantable medical device as in claim 29, wherein the device comprises multiple porous layers, each layer having a different porosity and atomic composition.